# PATENT ABSTRACTS OF JAPAN

(11)Publication number : 2002-152856

(43)Date of publication of application : 24.05.2002

(51)Int.Cl. H04Q 9/00
G06F 13/00
H04L 12/28
H04M 11/00

(21)Application number : 2000-339341

(22)Date of filing : 07.11.2000

(71)Applicant : NTT DOCOMO SHIKOKU INC

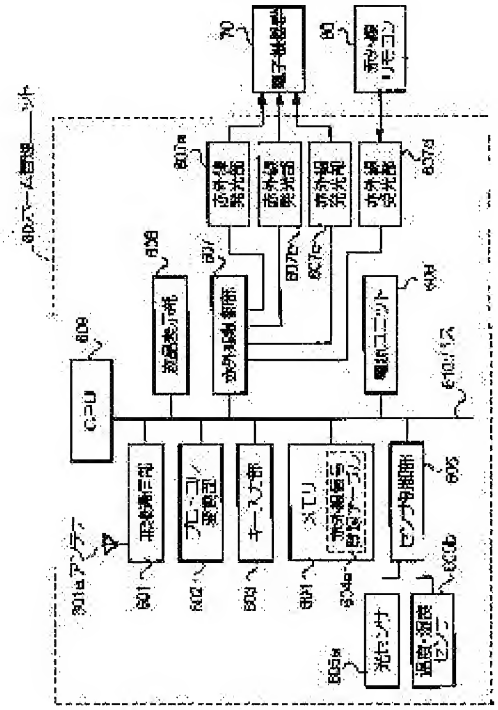
(72)Inventor : KAGAWA TETSUYA
YOKOYAMA TAKESHI

## (54) REMOTE CONTROL UNIT FOR ELECTRONIC DEVICE AND SERVICE MANAGEMENT SERVER, REMOTE CONTROL METHOD FOR THE ELECTRONIC DEVICE

(57)Abstract:

PROBLEM TO BE SOLVED: To provide a simpler remote control unit for an electronic device with excellent use-friendliness, a service management system and a remote control method for the electronic device.

SOLUTION: A home management unit 60 receives a control signal sent from an infrared ray remote controller 80 of various electronic devices in a registration mode, and registers a signal code of the control signal to an infrared ray signal registration table 604a. Furthermore, the unit 60 transmits information with respect to the registered control signal to a service management server 50. Then the home management unit 60 receives a remote control command of an electronic device from the service management server 50 via a mobile packet communication network 20, the unit 60 reds the signal code corresponding to a code number included in the control command from the infrared ray signal registration table 604a. Then the unit 60 allows an infrared ray control section 607 to generate an infrared ray control signal in response to the signal code and allows each of infrared ray emission sections 607a, 607b and 607c to transmit the infrared ray control signal.



* NOTICES *



1.This document has been translated by computer. So the translation may not reflect the original precisely.
2.**** shows the word which can not be translated.
3.In the drawings, any words are not translated.

## CLAIMS

[Claim(s)]
[Claim 1]A remote control unit of electronic equipment characterized by comprising the following.
A memory measure which matches and memorizes identification information which specifies a kind of remote control to electronic equipment, and signal data used for generation of a radio manipulate signal required for the remote control concerned.
An identification information reception means which receives identification information which specifies a kind of desired remote control via a network.
A radio manipulate signal transmitting means which generates a radio manipulate signal and transmits according to signal data corresponding to identification information received by said identification information reception means.

[Claim 2]A remote control unit of the electronic equipment according to claim 1 characterized by comprising the following.
A radio manipulate signal reception means which receives a radio manipulate signal outputted from a remote controller of the electronic equipment concerned in order to perform remote control of electronic equipment, and generates signal data corresponding to this radio manipulate signal.
A registration means which identification information which specifies a kind of remote control of said electronic equipment, and signal data generated by said radio manipulate signal reception means are made to correspond, and is written in said memory measure.

[Claim 3]A remote control unit of the electronic equipment according to claim 1 or 2, wherein said radio manipulate signal is an infrared signal.
[Claim 4]A remote control unit of the electronic equipment according to claim 1 which said

identification information reception means is a radio set, and is characterized by receiving said identification information via between non-railroad sections.
[Claim 5]A remote control unit of the electronic equipment according to claim 1 which said radio manipulate signal is an infrared signal, and is characterized by said radio manipulate signal transmitting means possessing two or more infrared ray emission sections for transmitting said infrared signal in the different direction.
[Claim 6]A remote control unit of the electronic equipment according to claim 1 or 2 characterized by comprising the following.
A sensor which detects a state of environment where said remote control unit was installed, or an operation situation of said electronic equipment.
A sensor output information transmission means which transmits a print-out of said sensor to a server which controls the remote control unit concerned via a network.

[Claim 7]A service managing server which performs communication with a remote control unit which receives instructions from a user's terminal via a network, and performs remote control of electronic equipment according to these instructions for a user, comprising:
Service ID which specifies the user concerned for every user.
A communication address for performing communication with a remote control unit which performs remote control of electronic equipment for the user concerned.
A database which matches and memorizes a remote-control menu in which a kind of remote control of feasible electronic equipment is shown.
When needed information from a user's terminal is received, service ID of the user concerned is received from the terminal concerned, When information which sends said remote-control menu corresponding to the service ID concerned to the terminal concerned, and specifies a kind of desired remote control from the terminal concerned is received, A control means which sends identification information which specifies the kind to a remote control unit corresponding to the user concerned using a communication address corresponding to the service ID concerned.

[Claim 8]When identification information which specifies a kind of remote control of electronic equipment which newly became feasible from said remote control unit in the remote control unit concerned is received, The service managing server possessing a remote-control menu update means which customizes the contents of said remote-control menu corresponding to the remote control unit concerned according to identification information which received according to claim 7.
[Claim 9]A remote control method of electronic equipment characterized by comprising the following.

a. A process in which a radio manipulate signal required for remote control of electronic equipment is taught to a remote control unit from a remote controller of the electronic equipment concerned.
b. A process in which a kind of remote control which became feasible is taught to a service managing server from a remote control unit in response to instruction of a radio manipulate signal
c. A process in which a kind of feasible remote control is shown to a user of a terminal according to a demand from a terminal.
d. A process in which a service managing server receives instructions which specify a kind of desired remote control from a terminal, f. A process in which a service managing server directs remote control to a remote control unit according to instructions from a terminal, and a process in which a radio manipulate signal for performing remote control g. remote control unit was instructed to be is outputted

---

[Translation done.]

* NOTICES *



1.This document has been translated by computer. So the translation may not reflect the original precisely.
2.**** shows the word which can not be translated.
3.In the drawings, any words are not translated.

## DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[Field of the Invention]This invention relates to the remote control method of the remote control unit of electronic equipment and a service managing server, and electronic equipment.
[0002]
[Description of the Prior Art]In modern society, various electronic equipment, such as an air-conditioner, a light, a videocassette recorder, and television, exists in a home. These domestic electronic equipment is connected with a telecommunication cable, a home network is built in recent years, and the conception about the networked home (called a digital household appliance) which can control operation from the home server provided in this network, and the standard for it are proposed [ various ]. The art for carrying out remote control of the electronic equipment is proposed by accessing the home server mentioned above from the place where one has gone using the portable communication terminal etc.
[0003]
[Problem(s) to be Solved by the Invention]By the way, the networked home etc. which the electronic equipment which can be the target of remote control is connected to a home network, and can perform data communications between home servers were only a part of electronic equipment very much. In order to build a home network, a home server and each electronic equipment needed to be connected with the telecommunication cable. The home server must be provided with the remote access function, the user authentication function, the communication function with the communication terminal and various electronic equipment which become remote-control origin, etc., high throughput was required of the home server, and there was also a problem that a home server will be a heavy price as a result.
[0004]This invention is made in view of the situation explained above, and is a thing.
The purpose is to provide the remote control method of the remote control unit of electronic

equipment and a service managing server, and electronic equipment excellent in user-friendliness.

[0005]
[Means for Solving the Problem]A memory measure which this invention matches identification information which specifies a kind of remote control to electronic equipment, and signal data used for generation of a radio manipulate signal required for the remote control concerned, and is memorized, An identification information reception means which receives identification information which specifies a kind of desired remote control via a network, Let a remote control unit of electronic equipment providing a radio manipulate signal transmitting means which generates a radio manipulate signal and transmits according to signal data corresponding to identification information received by said identification information reception means be a gist.
[0006]This invention receives instructions from a user's terminal via a network, Service ID which is a service managing server which performs communication with a remote control unit which performs remote control of electronic equipment for a user according to these instructions, and specifies the user concerned for every user, A communication address for performing communication with a remote control unit which performs remote control of electronic equipment for the user concerned, A database which matches and memorizes a remote-control menu in which a kind of remote control of feasible electronic equipment is shown, When needed information from a user's terminal is received, service ID of the user concerned is received from the terminal concerned, When information which sends said remote-control menu corresponding to the service ID concerned to the terminal concerned, and specifies a kind of desired remote control from the terminal concerned is received, Let a service managing server providing a control means which sends identification information which specifies the kind to a remote control unit corresponding to the user concerned using a communication address corresponding to the service ID concerned be a gist.
[0007]A process in which a radio manipulate signal [ remote control of a. electronic equipment ] to be invented [ this ] is taught to a remote control unit from a remote controller of the electronic equipment concerned, b. A process in which a kind of remote control which became feasible is taught to a service managing server from a remote control unit in response to instruction of a radio manipulate signal, c. A process in which a kind of feasible remote control is shown to a user of a terminal according to a demand from a terminal, d. A process in which a service managing server receives instructions which specify a kind of desired remote control from a terminal, f. Let a remote control method of electronic equipment possessing a process in which a service managing server directs remote control to a remote control unit according to instructions from a terminal, and a process in which a radio manipulate signal for performing remote control g. remote control unit was instructed to be is outputted be a gist.

[0008]
[Embodiment of the Invention]Hereafter, the embodiment of this invention is described with reference to drawings. The same numerals are given to the portion which is common in each figure. This embodiment can show one mode of this invention, cannot limit this invention, and can change it arbitrarily in the range of this invention.
[0009]<Composition <composition of a. whole system> of A-1. embodiment> drawing 1 is a block diagram which illustrates the composition of the communications system 1 containing the service managing server 50 and the home management unit 60 concerning one embodiment of this invention. As shown in the figure, the communications system 1 is provided with the following.
Two or more terminals 10.
Move packet communication network 20.
Gateway server 30.
The Internet 40, two or more service managing servers 50, two or more home management units 60, and two or more electronic equipment groups 70.

[0010]In drawing 1, in order to prevent a drawing becoming complicated, only the predetermined terminal 10 accommodated in the communications system 1, the predetermined base stations 21 and 22, the predetermined service managing server 50, the predetermined home management unit 60, and the predetermined electronic equipment group 70 are shown. The Internet 40 may be intranet.
[0011]In this communications system 1, the service which performs remote control of the various electronic equipment in a user's house is provided according to the demand from a user. In receiving this service, a user purchases the home management unit 60, installs in the place which can foresee each electronic equipment in a house, and should just do easy procedure for receiving service. Thus, by installing the home management unit 60 in a house, the user can receive henceforth the service which performs remote control of electronic equipment using the terminals 10, such as a cellular phone. The setting position of the home management unit 60 is not limited in a house, and may be installed in a factory, the outdoors, etc.
[0012]In order to offer this service, the following two things are required. One is things which information required in order to perform remote control comes to hand from a user, such as information which specifies the electronic equipment which is an object of remote control, and the contents of remote control. Another is sending instructions of remote control of electronic equipment to the home management unit 60 in a user's house according to the information which was carried out in this way and came to hand from the user. These are performed by the service managing server 50. The home management unit 60 installed in each user's house

outputs the infrared manipulate signal for remote control to surrounding electronic equipment according to the instructions sent from this service managing server 50. That is, in this embodiment, the service which carries out remote control of the electronic equipment in a house is provided by the cooperating work of the service managing server 50 and the home management unit 60 in each user's house. The above is an outline of this embodiment.

[0013]Next, each device shown in drawing 1 is explained. The terminal 10 is a portable communication terminal which has an instruction input part for a user to input directions and a liquid crystal display section which displays information and a picture, for example, are a portable telephone, a notebook sized personal computer, PDA (Personal Digital Assistant), etc. The special function for what is necessary being just to have the function to perform packet communication via the move packet communication network 20, and receiving remote-control service of electronic equipment of this terminal 10 is unnecessary.

[0014]The terminal 10 has the memory which omitted the graphic display. Terminal ID (Identification) for specifying the terminal 10 concerned as a meaning in the move packet communication network 20 and the program of the WWW (World Wide Web) browser are memorized by this memory. The terminal 10 can perform transfer of the service managing server 50 and data which were connected to the Internet 40 using the function of this WWW browser.

[0015]The move packet communication network 20 is a net which provides packet communication service for the terminal 10 and the home management unit 60, and is connected to the Internet 40 via the gateway server 30. Many base stations 21 and 22 are installed in the communication service area of the move packet communication network 20, and perform the terminal 10, the home management unit 60, and radio which carry out a ** area to each wireless cell.

[0016]The gateway server 30 is prepared for the move packet gateway transit exchange which omitted the graphic display which carries out interconnection of the move packet communication network 20 and the Internet 40. This gateway server 30 has the function to relay transfer of the data between the networks which have a different communications protocol. When it explains more concretely, the gateway server 30, An interconversion with TCP/IP (Transmission Control Protocol /Internet Protocol) which is a communications protocol for move packet communication network 20 and a standard communications protocol of the Internet 40 is performed, Transfer of the move packet communication network 20 and the data between the Internet 40 is relayed.

[0017]The terminals 10 are a notebook sized personal computer, PDA, etc., and when based on TCP/IP, the gateway server 30 performs only the protocol conversion of a lower layer from TCP/IP.

[0018]The service managing server 50 performs data communications via two or more home

management units 60 and move packet communication networks 20 under its management, and controls each of these home management units 60. This service managing server 50 receives instructions of remote control to the electronic equipment from the terminal 10, and determines the control commands which transmit to the home management unit 60 according to these instructions. The service managing server 50 notifies temperature, humidity, etc. in a user's house to the terminal 10 according to the sensor detection information received from the home management unit 60.

[0019]The home management unit 60 is installed in each user's house, and controls each electronic equipment which is under its management according to the control commands sent via the move packet communication network 20 from the service managing server 50 using an infrared manipulate signal. The home management unit 60 transmits temperature, humidity, etc. which were detected by two or more built-in sensors to the service managing server 50.

[0020]It is electronic equipment which can receive the infrared manipulate signal transmitted by the home management unit 60 from an infrared ray remote controller (it is hereafter called infrared remote control for short) for controllable electronic equipment to operate the electronic equipment concerned, and can perform processing corresponding to this manipulate signal here. As shown in drawing 1, lighting apparatus, an air-conditioner, a videocassette recorder, television, audio equipment, an air cleaner, etc. are contained in the electronic equipment group 70 with this controllable home management unit 60, for example. Each of these electronic equipment receives the infrared manipulate signal transmitted from the home management unit 60, and performs processing corresponding to this manipulate signal.

[0021]<Composition of b. service managing server> drawing 2 is a block diagram which illustrates the hardware constitutions of the service managing server 50 shown in drawing 1. As shown in the figure, the service managing server 50 has the memory 501, CPU(Central Processing Unit) 502, and the communication interface 503, and these each part is connected by bus 504.

[0022]The various programs etc. which are executed by CPU502 are stored in the memory 501. This memory 501 is provided with the following.

Attestation DB(DataBase) 501a.

Control code registration DB501b.

Instruction storing DB501c.

Sensor detection information DB501d.

[0023]As shown in drawing 3, the password is stored in attestation DB501a for every service ID assigned to each home management unit 60 under management of this service managing server 50. Here, service ID is the identification information for specifying the user who can receive service, and is given at the time of service subscription, i.e., the purchase of the home

management unit 60. A password is the information for attesting a service subscriber.
[0024]Unless each user knows service ID and a password in this embodiment, remote-control service of the electronic equipment under management of the home management unit 60 which a third party owns, i.e., the electronic equipment in a third party's house etc., cannot be received.
[0025]As shown in drawing 4, the control content of code No. and the code No. concerned is beforehand matched and stored in control code registration DB501b for every service ID of each home management unit 60 under management of this service managing server 50. Here, code No. is a control code transmitted to the home management unit 60, in order to carry out remote control of the electronic equipment. A control content shows the contents of remote control to each electronic equipment which is the target of remote control, and each electronic equipment concerned.
[0026]For example, in drawing 4, code No. "1" is a control code for making the lighting apparatus in a user's house turn on, and code No. "2" is a control code for making this lighting apparatus switch off. Code No."3"- "8" is a control code of control ******** about the air-conditioner in a user's house, and code No."9"- "14" is a control code of control ******** about the videocassette recorder in a user's house.
[0027]As for the value of each registration flag in this control code registration DB501b, "0" is stored as an initial value. And if the manipulate signal of the infrared remote control corresponding to code No. is registered into the home management unit 60, the value of a registration flag corresponding according to the registry request sent from the home management unit 60 will be rewritten from "0" to "1."
[0028]In drawing 4, in order to prevent a drawing becoming complicated, the number of control codes is omitted and indicated, but many control codes are prepared beforehand. For example, the control code for the controlling air quantity of an air-conditioner, the control code for air cleaners, the control code for reserves, etc. are prepared beforehand.
[0029]As shown in drawing 5, instructions of remote control to the electronic equipment directed from each terminal 10 are stored in instruction storing DB501c one by one. Here, the instructions directed from each terminal 10 include service ID of the home management unit 60 which manages the electronic equipment used as a controlled object, and the contents of remote control to electronic equipment. For example, as shown in the figure, the instructions about the reservation of picture recording of video are registered into storing No. "3." Completion of remote control of the electronic equipment according to these instructions will delete the instructions stored in instruction storing DB501c.
[0030]In sensor detection information DB501d, as shown in drawing 6, for every service ID of each home management unit 60 under management of this service managing server 50. It is detected by the built-in sensor of the home management unit 60, and the sensor detection

information sent to the service managing server 50 concerned is matched with information at the time of the date of acquisition, and is stored. Here, sensor detection information is information on the information which shows the lighting existence of the lighting apparatus detected using a photosensor, the temperature detected using temperature and a humidity sensor, or humidity.

[0031]Returning to drawing 2, CPU502 controls each part of a device connected via the bus 504 by executing the various programs stored in the memory 501. This CPU502 carries out remote control of the electronic equipment via the home management unit 60 as processing peculiar to this embodiment according to instructions of remote control to the electronic equipment received from the terminal 10.

[0032]The communication interface 503 is a circuit which controls the data communications performed via the Internet 40 between the service managing server 50, and the terminal 10 concerned and the home management unit 60.

[0033]<Composition of c. home management unit> drawing 7 is a perspective view which illustrates the appearance composition of the home management unit 60 shown in drawing 1. As shown in the figure, two or more openings are provided in the body casing 60a upper surface (on space) of the home management unit 60. And the key input section 603 in which each opening was faced and two or more operation keys were provided, The liquid crystal display section 606, the infrared ray emission section 607a which transmits an infrared manipulate signal to electronic equipment, the infrared light sensing portion 607d which receives the manipulate signal transmitted from infrared remote control, and ** are provided in the case interior. Two or more openings are provided also in the side of the body casing 60a, and the photosensor 605a, temperature and a humidity sensor 605b, and the infrared ray emission sections 607b and 607c mentioned above are installed in each opening.

[0034]Having had here composition which turns two or more infrared ray emission sections 607a, 607b, and 607c in the respectively separate direction, and installs them, Each electronic equipment which exists in the circumference of this home management unit 60 is for receiving certainly the infrared manipulate signal transmitted from the home management unit 60.

[0035]It may be the composition of not providing the opening the key input section 603, the liquid crystal display section 606, and for the infrared light sensing portions 607d in the body casing 60a. In this case, when registering the manipulate signal of infrared remote control into the home management unit 60 concerned, the body casing 60a will be opened and registering operation will be performed.

[0036]Drawing 8 is a block diagram which illustrates the hardware constitutions of the home management unit 60 shown in drawing 7. As shown in the figure, the home management unit 60, It has the Radio Communications Department 601, the protocol conversion part 602, the key input section 603, the memory 604, the sensor control part 605, the liquid crystal display

section 606, the infrared control section 607, the power supply unit 608, and CPU609, and these each part is connected by bus 610.

[0037]The Radio Communications Department 601 is a wireless communication module which controls the wireless data transmission which is provided with the antenna 601a and performed between the base stations 22. This Radio Communications Department 601 superimposes various data, such as sensor detection information, on a subcarrier under control of CPU609, and transmits this signal to the base station 22 via the antenna 601a. The Radio Communications Department 601 receives the signal sent to self via the antenna 601a from the base station 22, restores to this, and gets various data, such as control commands.

[0038]The protocol conversion part 602 changes the protocol of the data received in the Radio Communications Department 601, and the data transmitted via the Radio Communications Department 601. The key input section 603 has two or more input keys, such as the SET key and a cursor key, and outputs the manipulate signal according to operation of these keys to CPU609.

[0039]The various programs etc. which are executed by CPU609 are stored in the memory 604. This memory 604 has the infrared signal registration table 604a. As shown in drawing 9, the control content of code No. and the code No. concerned is beforehand matched and stored in the infrared signal registration table 604a. Here, this code No. and a control content are the same as code No. and the control content in control code registration DB501b (refer to drawing 4) which is stored in the service managing server 50 and which was mentioned above.

[0040]The signal code of the manipulate signal of infrared remote control received via the infrared light sensing portion 607d is stored in each signal code item in this infrared signal registration table 604a. In drawing 9, although the number of control codes is omitted and indicated like drawing 4, many control codes are prepared beforehand.

[0041]It returns to drawing 8 and the photosensor 605a, and temperature and a humidity sensor 605b are connected to the sensor control part 605. The sensor control part 605 detects the lighting existence of lighting apparatus, temperature, humidity, etc. under control of CPU609 using these sensors 605a and 605b. The liquid crystal display section 606 comprises a drive circuit which performs display control of a liquid crystal display panel and this liquid crystal display panel.

[0042]Two or more infrared ray emission sections 607a, 607b, and 607c and infrared light sensing portions 607d are connected to the infrared control section 607. This infrared control section 607 receives the manipulate signal transmitted from the infrared remote control 80 of various electronic equipment via the infrared light sensing portion 607d under control of CPU609. And after the infrared control section 607 amplifies the received infrared manipulate signal to a predetermined level, it decodes this and acquires the signal code of an infrared manipulate signal. This signal code is stored in the infrared signal registration table 604a by

CPU609. The infrared control section 607 generates an infrared manipulate signal using the signal code directed by CPU609, and transmits this infrared manipulate signal via each infrared ray emission sections 607a, 607b, and 607c.

[0043]The power supply unit 608 is a power supply circuit which supplies driving power to each part of the home management unit 60. CPU609 controls each part of a device connected via the bus 610 by executing the various programs stored in the memory 604. This CPU609 performs processing which registers into the infrared signal registration table 604a the signal code of each manipulate signal transmitted from the infrared remote control 80 of the electronic equipment concerned for every electronic equipment which is the target of remote control as processing peculiar to this embodiment. The information about the registered infrared manipulate signal is transmitted to the service managing server 50.

[0044]If control commands are received via the move packet communication network 20 from the service managing server 50, CPU609, The infrared manipulate signal corresponding to code No. contained in these control commands is generated in cooperation with the infrared control section 607, and this infrared manipulate signal is made to transmit from each infrared ray emission sections 607a, 607b, and 607c. The above is the composition of the communications system 1 concerning this embodiment.

[0045]<Operation of an A-2. embodiment>, next operation of this embodiment are explained. First, a user performs easy procedure for receiving service while purchasing the home management unit 60 in receiving remote-control service of electronic equipment. According to the subscription procedure of this service, a service entrepreneur determines the service managing server 50 which manages the home management unit 60 of the user who newly joined. A service entrepreneur performs writing processing etc. of information required in order to control the home management unit 60 of the user who newly joined to this service managing server 50.

[0046]For example, the processing to which a service entrepreneur registers service ID and a password into attestation DB501a to the service managing server 50, The data area for home management unit 60 of a new user is set as control code registration DB501b and sensor detection information DB501d, Processing which matches and stores service ID, processing which matches the address information of this home management unit 60 with service ID, and stores it in the memory 501, etc. are performed. Here, address information is information which is an IP address, a telephone number, etc., and is needed, for example in order that the service managing server 50 may perform the home management unit 60 and data communications.

[0047]<operation about registration of an a. infrared manipulate signal> -- first about the operation in the case of registering the manipulate signal of the infrared remote control 80 of various electronic equipment into the home management unit 60. It explains in order of the unit

registration processing performed with the home management unit 60, and server registration processing [ which is performed with the service managing server 50 ] **.

[0048]<a-1. unit registration processing> This unit registration processing is performed, the time of introduction of the home management unit 60, or when newly registering electronic equipment as an object of remote control. The home management unit 60 will start unit registration processing, if the electric power switch which omitted the graphic display where the SET key of the key input section 603 is pressed is switched to one.

[0049]Drawing 10 is a flow chart explaining operation of the unit registration processing performed by CPU609 in the home management unit 60. As shown in the figure, CPU609 displays first the register menu shown in drawing 11 on the screen of the liquid crystal display section 606 according to depression operation of the cursor key with which the key input section 603 is equipped (Step S11). A user changes the contents of the register menu by which a screen display is carried out by depression operation of a cursor key, and chooses the contents of operation of the infrared manipulate signal to register, and applicable electronic equipment. And a user does depression operation of the SET key, when an applicable item is displayed on a screen. The contents of operation of the infrared manipulate signal to register and electronic equipment, i.e., code No., are determined by depression operation of this SET key.

[0050]CPU609 returns to the above-mentioned step S11, when it distinguishes whether depression operation of the SET key was carried out (Step S12) and depression operation of the SET key is not carried out. CPU609 determines code No. of the infrared manipulate signal to register first, when it distinguishes that depression operation of the SET key was carried out (Step S13). Subsequently, CPU609 directs reception of the manipulate signal transmitted from the infrared remote control 80 to the infrared control section 607 (Step S14). A user operates the infrared remote control 80 which it has as accessories of electronic equipment, turns the infrared manipulate signal to register to the infrared light sensing portion 607d of the home management unit 60 concerned, and transmits here. The infrared control section 607 receives the manipulate signal transmitted from the infrared remote control 80 via the infrared light sensing portion 607d. And after the infrared control section 607 amplifies the received infrared manipulate signal to a predetermined level, it decodes this, acquires the signal code of an infrared manipulate signal, and transmits to CPU609.

[0051]If CPU609 receives a signal code from the infrared control section 607 (Step S15), it is made to correspond to code No. which determined this signal code in the above-mentioned step S13, and is stored in the infrared signal registration table 604a (Step S16). Subsequently, the message which asks whether CPU609 ends registration of an infrared manipulate signal is displayed on a screen, and it is distinguished whether registration of an infrared manipulate signal is ended based on the contents of the keystroke (Step S17). CPU609 returns to the

above-mentioned step S11, when registration of the infrared manipulate signal was not ended, i.e., registering other infrared manipulate signals succeedingly is directed.
[0052]When ending registration of an infrared manipulate signal is directed, CPU609 ranks second and transmits a registry request to the service managing server 50 via the move packet communication network 20 (Step S18). Here, each code No. corresponding to one or more infrared manipulate signals registered by processing to the above-mentioned steps S11-S17 and service ID of the home management unit 60 concerned are contained in a registry request. After a registry request changes a protocol in the protocol conversion part 602, it is transmitted to the service managing server 50 via the Radio Communications Department 601.

[0053]Then, CPU609 will end unit registration processing, if the notice of registration completion is received from the service managing server 50 (Step S19). After CPU609 transmits a registry request to the service managing server 50, when the notice of registration completion is not able to be received within predetermined time, it judges it as a communication error and transmits a registry request to the service managing server 50 again.

[0054]The <a-2. server registration processing> service managing server 50 will start server registration processing, if a registry request is received from the home management unit 60 under its management. Drawing 12 is a flow chart explaining operation of the server registration processing performed by CPU502 in the service managing server 50.
[0055]As shown in the figure, if a registry request is received from the home management unit 60 (Step S31), first CPU502, Control code registration DB501b is updated based on one or more code No. and service ID of the home management unit 60 which are contained in this registry request (Step S32). If it explains more concretely, CPU502 will rewrite the value of each registration flag corresponding to the combination of service ID and one or more code No. which are contained in the registry request from "0" to "1" in control code registration DB501b.
[0056]Subsequently, CPU502 updates the data of the remote-control menu stored in the memory 501 according to the contents of updated control code registration DB501b (Step S33). Here, a remote-control menu is an operation menu by which a screen display is carried out in order to make a user input instructions of remote control in the terminal 10. According to the remote-control menu by which a screen display is carried out to the terminal 10, a user performs item selection and data input and determines the contents of instructions.
[0057]This remote-control menu is prepared every home management unit 60. And the contents of the remote-control menu are customized by processing of the above-mentioned step S33 every home management unit 60. For example, no control item about an air-conditioner is displayed on the remote-control menu for home management unit 60 into which

one is not registered for the infrared manipulate signal for operating an air-conditioner by remote control. The concrete example of a screen display of this remote-control menu shall be explained in the remote controlled processing mentioned later.

[0058]If renewal of a remote control menu is completed, CPU502 will transmit the notice of registration completion to the home management unit 60 (Step S34), and will end server registration processing.

[0059]<Operation in the case of performing remote control of b. electronic equipment>, next the operation in the case of performing remote control of electronic equipment using the terminal 10 are explained in order of the remote controlled processing performed with the service managing server 50, and signal transmission processing [ which is performed with the home management unit 60 ] **.

[0060]A user directs access to the service managing server 50 using the function of the performed WWW browser to perform remote control of <b-1. remote controlled processing> electronic equipment while directing starting of a WWW browser by key operation in the terminal 10. According to this, the terminal 10 transmits needed information to the service managing server 50 via the move packet communication network 20. The service managing server 50 will start remote controlled processing, if the needed information from the terminal 10 is received.

[0061]Drawing 13 is a flow chart explaining operation of the remote controlled processing performed by CPU502 in the service managing server 50. As shown in the figure, CPU502 transmits the attestation picture data for performing user authentication to the terminal 10 first (Step S51). As shown in drawing 14, the input of service ID and a password is urged to this attestation picture data to a user. This attestation screen is displayed on the terminal 10, and a user enters service ID and a password by key operation according to this. And this service ID and password are transmitted to the service managing server 50 from the terminal 10.

[0062]CPU502 of the service managing server 50 will perform user authentication with reference to attestation DB501a, if service ID and a password are received from the terminal 10 (Step S52) (Step S53). And CPU502 transmits an authentication result to the terminal 10 (Step S54). When attestation is not materialized, attestation transmits the message which stimulates reinput of that it was abortive and service ID, and a password to the terminal 10, and returns to the above-mentioned step S51. When user authentication is materialized, CPU502 reads the data of the remote-control menu corresponding to attested service ID from the memory 501, and transmits to the terminal 10 (Step S55). According to this, a screen display of the received remote-control menu is carried out at the terminal 10.

[0063]Drawing 15 is a figure which illustrates the contents of the remote-control menu by which a screen display is carried out in the terminal 10, and its change state. The example of a screen display shown in this drawing 15 shows the case of the portable telephone provided

with the liquid crystal display panel with the small terminal 10. First, as shown in the figure (a), the main menu of remote control is displayed on the screen of the terminal 10. If ""1" air conditioning control" is chosen in this main menu, the menu for air conditioning shown in the figure (b) will be displayed on a screen. And in this menu for air conditioning, the example of a screen display when "a display of "1" room temperature" is chosen is the figure (c), and the examples of a screen display when ""2" air-conditioning ON-OFF" is chosen are the figure (d) and the figure (e). In the menu for air conditioning shown in the figure (b), the examples of a screen display when ""3" temperature setting" is chosen are the figure (f) and the figure (g), and the example of a screen display when ""4" state confirmation" is chosen is the figure (h).

[0064]In each example of a screen display shown in this drawing 15, the portion shown with the dashed line is menu data which cannot be displayed on one screen, and is displayed in a screen by directing scrolling.

[0065]A user changes the contents of the remote-control menu by which a screen display is carried out by key operation, and chooses the electronic equipment which carries out remote control, and its control content. Data input is performed if needed. And if instructions of remote control are determined by key operation, these instructions will be transmitted to the service managing server 50. Here, attested service ID is contained in the instructions transmitted to the service managing server 50.

[0066]It returns to drawing 13, and CPU502 of the service managing server 50 stores these instructions in instruction storing DB501c, if instructions of remote control are received from the terminal 10 (Step S56) (Step S57). CPU502 acquires code No. corresponding to instructions with reference to control code registration DB501b (Step S58). And CPU502 transmits the control commands containing this code No. to the home management unit 60 corresponding via the move packet communication network 20 (Step S59). If control commands are received from the service managing server 50, the home management unit 60 will generate the infrared manipulate signal corresponding to code No. contained in these control commands, and will transmit this infrared manipulate signal. In the home management unit 60, the lighting existence of lighting, temperature, and humidity are detected by the sensor control part 605, and this sensor detection information is transmitted to the service managing server 50.

[0067]CPU502 of the service managing server 50 stores this sensor detection information in sensor detection information DB501d, if sensor detection information is received from the home management unit 60 (Step S60) (Step S61). Subsequently, CPU502 distinguishes whether the instructions stored in instruction storing DB501c were compared with the received sensor detection information if needed, and the control result according to instructions was obtained (Step S62).

[0068]For example, when instructions are lighting of lighting apparatus, putting out lights, the room temperature adjustment by an air-conditioner, etc., a control result can be checked using

sensor detection information. Therefore, processing of the above-mentioned step S62 is performed in this case. However, when instructions are recording directions of video, etc., a control result cannot be checked using sensor detection information. Therefore, execution of processing of the above-mentioned step S62 is canceled in this case.

[0069]In the above-mentioned step S62, when the control result according to instructions was not obtained and it distinguishes, CPU502 returns to the above-mentioned step S59, and resends control commands to the home management unit 60. For example, although instructions were lighting of lighting apparatus, when sensor detection information shows putting out lights of lighting apparatus, the control commands which direct lighting of a light are again transmitted to the home management unit 60.

[0070]However, for example, when instructions are room temperature adjustment by an air-conditioner, in order to obtain the control result according to instructions, fixed time progress is needed. in this case, the infrared manipulate signal which directs operation of an air-conditioner from the home management unit 60 if it is the control constitution which returns to the above-mentioned step S59 promptly after distinguishing, if the control result according to instructions is not obtained in the above-mentioned step S62 -- fixed time -- it will continue being transmitted continuously. Therefore, if the control result according to instructions is not obtained in the above-mentioned step S62, after distinguishing and predetermined time passes when it is the processing which needs fixed time progress to obtain the control result according to instructions, it is desirable to consider it as the control constitution which returns to the above-mentioned step S59.

[0071]On the other hand, in the above-mentioned step S62, CPU502 transmits a control completion notification to the home management unit 60 first, when it distinguishes that the control result according to instructions was obtained, and when execution of processing of the above-mentioned step S62 is canceled (Step S63). Subsequently, CPU502 notifies a control result to the terminal 10 (Step S64), and ends remote controlled processing.

[0072]The <b-2. signal transmission processing> home management unit 60 will start signal transmission processing, if needed information is received from the service managing server 50. Drawing 16 is a flow chart explaining operation of the signal transmission processing performed by CPU609 in the home management unit 60.

[0073]As shown in the figure, CPU609 receives first the control commands sent via the move packet communication network 20 from the service managing server 50 (Step S81). Here, after it is received by the Radio Communications Department 601 and control commands change a protocol in the protocol conversion part 602, they are handed over by CPU609.

[0074]Subsequently, CPU609 extracts code No. contained in the received control commands, and acquires the signal code of the infrared manipulate signal corresponding to code No. with reference to the infrared signal registration table 604a (Step S82). And CPU609 directs

transmission of an infrared manipulate signal to the infrared control section 607 while transmitting this signal code to the infrared control section 607 (Step S83).

[0075]According to this, the infrared control section 607 generates an infrared manipulate signal using the signal code given by CPU609, and transmits this infrared manipulate signal via each infrared ray emission sections 607a, 607b, and 607c. If the infrared manipulate signal sent from the home management unit 60 is received, each electronic equipment which is the target of remote control will carry out the day code of this infrared manipulate signal, and will distinguish whether they are the operating instructions addressed to self. And only the electronic equipment distinguished as they are the operating instructions addressed to self performs processing according to the received operating instructions.

[0076]CPU609 of the home management unit 60 transmits detection directions to the sensor control part 605, after transmitting an infrared manipulate signal in the above-mentioned step S83. According to this, the sensor control part 605 detects the lighting existence of lighting apparatus, temperature, humidity, etc. using the photosensor 605a, and temperature and a humidity sensor 605b, and hands them over to CPU609 as sensor detection information. CPU609 transmits this sensor detection information to the service managing server 50 via the move packet communication network 20 (Step S84).

[0077]Then, CPU609 shifts to reception standby mode. And CPU609 returns to (Step S85:Yes) and the above-mentioned step S82, when control commands are newly received from the service managing server 50, and it performs processing according to reception of control commands. CPU609 will end signal transmission processing, if a control completion notification is received from the service managing server 50 (Step S86: Yes).

[0078]<The sequence chart in the case of carrying out remote control of the b-3. electronic equipment>, next drawing 17 are sequence charts which illustrate transfer of the signal between the terminal 10, the service managing server 50, the home management unit 60, and the electronic equipment group 70 in the case of carrying out remote control of the electronic equipment. In the following explanation, the same step number is given to each step of remote controlled processing (refer to drawing 13) and signal transmission processing (refer to drawing 16) mentioned above, and a corresponding portion.

[0079]As shown in the figure, the service managing server 50 will reply attestation picture data, if needed information is received from the terminal 10 (Step S51). And the service managing server 50 performs user authentication as receiving service ID and a password from the terminal 10, and replies an authentication result to a terminal (Step S54). (Step S52) When attestation is materialized, the service managing server 50 transmits a remote-control menu to the terminal 10 (Step S55).

[0080]Then, the service managing server 50 will transmit the control commands corresponding to these instructions to the home management unit 60, if instructions of remote control to

electronic equipment are received from the terminal 10 (Step S56) (Step S59). If control commands are received from the service managing server 50 (Step S81), the home management unit 60 will generate the infrared manipulate signal corresponding to control commands, and will transmit to the electronic equipment group 70 (Step S83).

[0081]If an infrared manipulate signal is received from the home management unit 60, the electronic equipment group 70 will decode this infrared manipulate signal, and will perform processing according to the manipulate signal which only the electronic equipment distinguished as it is a manipulate signal addressed to self received.

[0082]The home management unit 60 transmits the sensor detection information detected using the photosensor 605a, and temperature and a humidity sensor 605b to the service managing server 50 (Step S84). Then, the service managing server 50 repeats the control to the home management unit 60 surrounded with the dashed line in drawing 17, and is performed until it compares the instructions and the sensor detection information which were directed from the terminal 10 if needed and the control result according to instructions is obtained.

[0083]And the service managing server 50 will transmit a control completion notification to the home management unit 60, if the control result according to instructions is obtained (Step S63). The service managing server 50 transmits a control result to a terminal (Step S64).

[0084]When the instructions from the <operation in the case of reservation of picture recording of b-4. video> terminal 10 are the reservation of picture recording of video, the service managing server 50 and the home management unit 60 apply operation of remote control of the electronic equipment mentioned above, and perform processing of instructions. The operation about the reservation of picture recording of video is explained to below supplementarily.

[0085]The service managing server 50 stores these instructions in instruction storing DB501c, if instructions of the reservation of picture recording of video are received from the terminal 10. The instructions about the reservation of picture recording of this video are instructions shown in storing No. "3" in drawing 5, for example. The service managing server 50 has a clock function, and can acquire the present date information.

[0086]If the service managing server 50 comes before the predetermined time of the video recording start time of the instructions about the reservation of picture recording of the video stored in instruction storing DB501c, or video recording start time, it will start the remote controlled processing to a videocassette recorder. And the control commands having contained each code No. applicable to the setting out CH (channel) for main power supply one of a videocassette recorder and recording and recording operation are transmitted to the home management unit 60. The home management unit 60 transmits each infrared manipulate signal according to the received control commands, and directs the start of recording to a

videocassette recorder.

[0087]If the service managing server 50 becomes recording finish time, again, it will start the remote controlled processing to a videocassette recorder, and will transmit the control commands having contained each code No. applicable to the stopping operation of a videocassette recorder, and main power supply OFF to the home management unit 60. The home management unit 60 transmits each infrared manipulate signal according to the received control commands, and directs the end of recording to a videocassette recorder.

[0088]As explained above, it comes to be able to carry out remote control of the various home electronics which have generally already spread widely, such as an operational air-conditioner, a videocassette recorder, television, and audio equipment, with infrared remote control according to this embodiment.

[0089]According to this embodiment, user authentication, the data communications with the terminal 10 which becomes management [ of a remote control menu ] and remote-control origin, etc. are performed by the service managing server 50. Also when the home management unit 60 controls electronic equipment, it is only transmitting an infrared manipulate signal. Therefore, the composition of the home management unit 60 can be simplified and a production cost can be reduced.

[0090]According to this embodiment, the home management unit 60 transmits and receives data by the base station 22 and radio of the move packet communication network 20. Therefore, there is no necessity of connecting the home management unit 60 with a telephone line etc., and the flexibility of a setting position can be raised on the occasion of installation of the home management unit 60. User-friendliness can be raised -- it is not necessary to connect each electronic equipment with a telecommunication cable etc..

[0091]Although beyond <C. modification> described the embodiment of this invention, this embodiment is illustration to the last, and various modification is possible for it in the range which does not deviate from the meaning of this invention. As a modification, the following can be considered, for example.

[0092]The <modification 1> above-mentioned embodiment explained the case where transmitted an infrared signal from the home management unit 60, and remote control of the electronic equipment was carried out. However, it may be the composition which transmits the radio signal based on HomeRF (Home Radio Frequency) or Bluetooth (registered trademark) instead of an infrared signal, and carries out remote control of the electronic equipment.

[0093]In the <modification 2> above-mentioned embodiment, the home management unit 60 considered sensor detection information as the composition which transmits to the service managing server 50. However, the home management unit 60 may be composition which transmits sensor detection information to the terminal 10 directly via the move packet communication network 20. In this case, the home management unit 60 has the composition

which can be registered into the memory 604 according to key operation for the telephone number of the terminal 10, an IP address, a mail address used as the report destination of sensor detection information, etc.

[0094]While turning OFF all the power supplies of each electronic equipment or making lighting apparatus turn on in the <modification 3> above-mentioned embodiment, According to the key operation of the terminal 10, a user creates the control code which combined each code No., and it is good for an air-conditioner to adjust a room temperature at 25 ** etc. also as composition which can be registered into a remote-control menu. That is, it is good also as composition which can equip the service managing server 50 with the macro function of a control code and in which a user can customize a remote-control menu using the terminal 10.

[0095]According to the <modification 4> above-mentioned embodiment, the service managing server 50 was considered as the composition connected to the Internet 40. However, the service managing server 50 may be composition currently installed in the move packet communication network 20. The service managing server 50 may be composition by which direct continuation is carried out to the gateway server 30 via the dedicated line. This gateway server 30 may be the composition of having a function of the service managing server 50.

[0096]The <modification 5> above-mentioned embodiment explained the case where a portable telephone, and a notebook sized personal computer and PDA were used as the terminal 10. However, this invention, without passing the move packet communication network 20, It is applicable also to a personal computer, PDA, etc. which can perform the service managing server 50 and data communications only via networks, such as the Internet 40 and LAN (Local Area Network). Of course, it can apply also to PHS (Personal Handyphone System: registered trademark).

[0097]

[Effect of the Invention]As explained above, it comes to be able to carry out remote control of the home electronics which have generally already spread widely with simple composition according to this invention.

---

[Translation done.]

* NOTICES *



1.This document has been translated by computer. So the translation may not reflect the original precisely.
2.**** shows the word which can not be translated.
3.In the drawings, any words are not translated.

## TECHNICAL FIELD

[Field of the Invention]This invention relates to the remote control method of the remote control unit of electronic equipment and a service managing server, and electronic equipment.

[Translation done.]

* NOTICES *



1.This document has been translated by computer. So the translation may not reflect the original precisely.
2.**** shows the word which can not be translated.
3.In the drawings, any words are not translated.

## PRIOR ART

[Description of the Prior Art]In modern society, various electronic equipment, such as an air-conditioner, a light, a videocassette recorder, and television, exists in a home. These domestic electronic equipment is connected with a telecommunication cable, a home network is built in recent years, and the conception about the networked home (called a digital household appliance) which can control operation from the home server provided in this network, and the standard for it are proposed [ various ]. The art for carrying out remote control of the electronic equipment is proposed by accessing the home server mentioned above from the place where one has gone using the portable communication terminal etc.

[Translation done.]

* NOTICES *



1.This document has been translated by computer. So the translation may not reflect the original precisely.
2.**** shows the word which can not be translated.
3.In the drawings, any words are not translated.

## EFFECT OF THE INVENTION

[Effect of the Invention]As explained above, it comes to be able to carry out remote control of the home electronics which have generally already spread widely with simple composition according to this invention.

[Translation done.]

* NOTICES *



1.This document has been translated by computer. So the translation may not reflect the original precisely.
2.**** shows the word which can not be translated.
3.In the drawings, any words are not translated.

## TECHNICAL PROBLEM

[Problem(s) to be Solved by the Invention]By the way, the networked home etc. which the electronic equipment which can be the target of remote control is connected to a home network, and can perform data communications between home servers were only a part of electronic equipment very much. In order to build a home network, a home server and each electronic equipment needed to be connected with the telecommunication cable. The home server must be provided with the remote access function, the user authentication function, the communication function with the communication terminal and various electronic equipment which become remote-control origin, etc., high throughput was required of the home server, and there was also a problem that a home server will be a heavy price as a result.
[0004]This invention is made in view of the situation explained above, and is a thing.
The purpose is to provide the remote control method of the remote control unit of electronic equipment and a service managing server, and electronic equipment excellent in user-friendliness.

[Translation done.]

* NOTICES *



1.This document has been translated by computer. So the translation may not reflect the original precisely.
2.**** shows the word which can not be translated.
3.In the drawings, any words are not translated.

## DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]
[Drawing 1]It is a block diagram which illustrates the composition of the communications system containing the service managing server and home management unit concerning one embodiment of this invention.
[Drawing 2]It is a block diagram which illustrates the hardware constitutions of the service managing server concerning the embodiment.
[Drawing 3]In the service managing server concerning the embodiment, it is a figure which illustrates the data configuration of the attestation DB stored in a memory.
[Drawing 4]In the service managing server concerning the embodiment, it is a figure which illustrates the data configuration of the control code registration DB stored in a memory.
[Drawing 5]In the service managing server concerning the embodiment, it is a figure which illustrates the data configuration of the instruction storing DB stored in a memory.
[Drawing 6]In the service managing server concerning the embodiment, it is a figure which illustrates the data configuration of the sensor detection information DB stored in a memory.
[Drawing 7]It is a perspective view which illustrates the appearance composition of the home management unit concerning the embodiment.
[Drawing 8]It is a block diagram which illustrates the hardware constitutions of the home management unit concerning the embodiment.
[Drawing 9]In the home management unit concerning the embodiment, it is a figure which illustrates the data configuration of the infrared signal registration table stored in a memory.
[Drawing 10]In the home management unit concerning the embodiment, it is a flow chart explaining operation of the unit registration processing performed by CPU.
[Drawing 11]In the home management unit concerning the embodiment, it is a figure which illustrates the contents of the register menu displayed on a liquid crystal display section, and its change state.

[Drawing 12]In the service managing server concerning the embodiment, it is a flow chart explaining operation of the server registration processing performed by CPU.
[Drawing 13]In the service managing server concerning the embodiment, it is a flow chart explaining operation of the remote controlled processing performed by CPU.
[Drawing 14]In the terminal concerning the embodiment, it is a figure which illustrates the attestation screen displayed on a liquid crystal display section.
[Drawing 15]In the terminal concerning the embodiment, it is a figure which illustrates the contents of the remote-control menu displayed on a liquid crystal display section, and its change state.
[Drawing 16]In the home management unit concerning the embodiment, it is a flow chart explaining operation of the signal transmission processing performed by CPU.
[Drawing 17]It is a sequence chart which illustrates transfer of the signal in the terminal, the service managing server, home management unit, and electronic equipment group in the case of carrying out remote control of the electronic equipment in the embodiment.
[Brief Description of Notations]
1 .... A communications system, 10 .... A terminal, 20 .... Move packet communication network, 21, 22 .... A base station, 30 .... A gateway server, 40 .... Internet, 50 .... A service managing server, 60 .... A home management unit, 60a .... Body casing, 70 [ .... Control code registration DB, ] .... An electronic equipment group, 501 .... A memory, 501a .... The attestation DB, 501b 501c .... The instruction storing DB, 501d .... The sensor detection information DB, 502 .... CPU, 503 .... A communication interface, 504 .... A bus, 601 .... Radio Communications Department, 601a .... An antenna, 602 .... A protocol conversion part, 603 .... Key input section, 604 .... A memory, 604a .... An infrared signal registration table, 605 .... Sensor control part, 605a [ .... An infrared control section, 607a, 607b, 607c / .... An infrared ray emission section, 607d / .... An infrared light sensing portion, 608 / .... A power supply unit, 609 / .... CPU, 610 / .... Bus. ] .... A photosensor, 605b .... Temperature and a humidity sensor, 606 .... A liquid crystal display section, 607

---

[Translation done.]

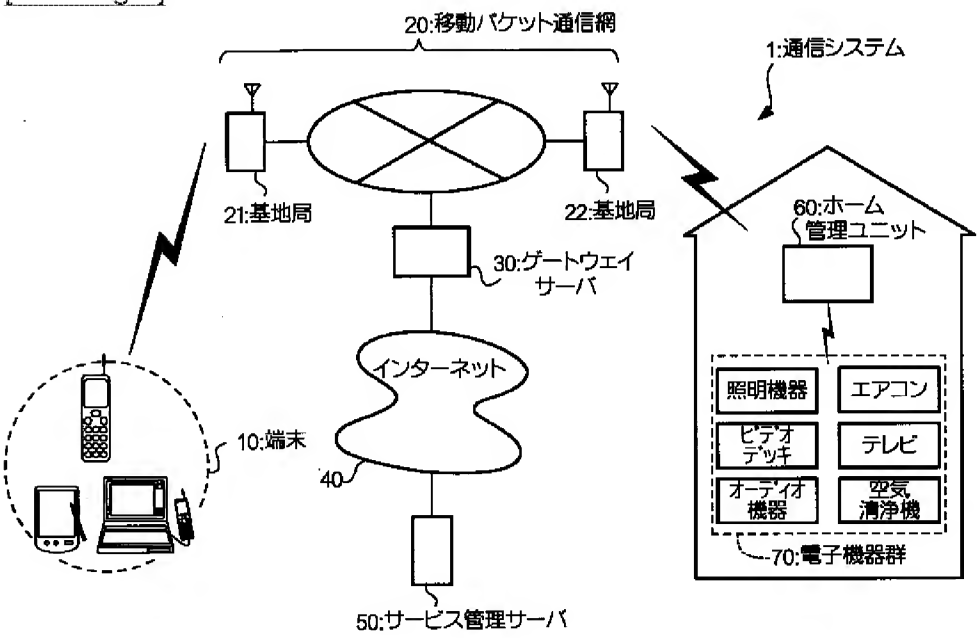
* NOTICES *



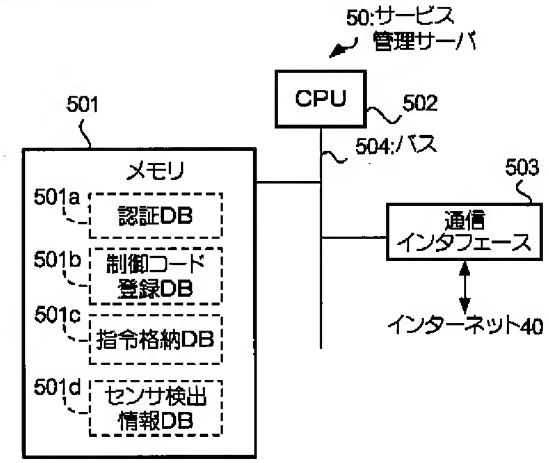
1.This document has been translated by computer. So the translation may not reflect the original precisely.
2.**** shows the word which can not be translated.
3.In the drawings, any words are not translated.

## DRAWINGS

[Drawing 1]




[Drawing 2]



[Drawing 3]

501a:認証DB

| サービスID | パスワード |
|---|---|
| SA00001 | |
| SA00002 | |
| SA00003 | |
| ⋮ | ⋮ |

[Drawing 5]

501c:指令格納DB

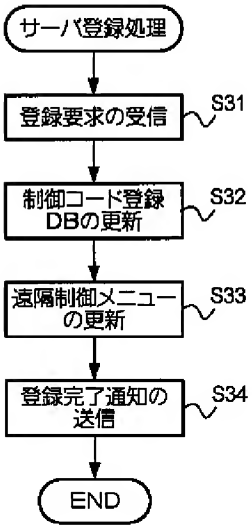
| 格納No. | サービスID | 制御内容 | |
|---|---|---|---|
| 1 | SA00003 | 対象 | 照明機器 |
| | | 照明 | オン |
| 2 | SA00001 | 対象 | エアコン |
| | | 設定温度 | 25 |
| 3 | SA00002 | 対象 | ビデオデッキ |
| | | 処理 | 録画予約 |
| | | 開始時刻 | 11/7/20:00 |
| | | 終了時刻 | 11/7/20:30 |
| | | 録画CH | 1 |
| ⋮ | ⋮ | ⋮ | |

[Drawing 6]

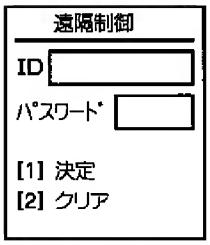
501d:センサ検出情報DB

| サービスID | センサ検出情報 | | 取得日時 |
|---|---|---|---|
| SA00001 | 照明 | オフ | 2000/11/7/15:27 |
| | 温度[℃] | 21 | |
| | 湿度[%] | 53 | |
| SA00002 | 照明 | オン | 2000/11/7/14:58 |
| | 温度[℃] | 25 | |
| | 湿度[%] | 40 | |
| SA00003 | 照明 | オフ | 2000/11/7/15:35 |
| | 温度[℃] | 23 | |
| | 湿度[%] | 64 | |
| ⋮ | ⋮ | | ⋮ |

[Drawing 12]




[Drawing 14]

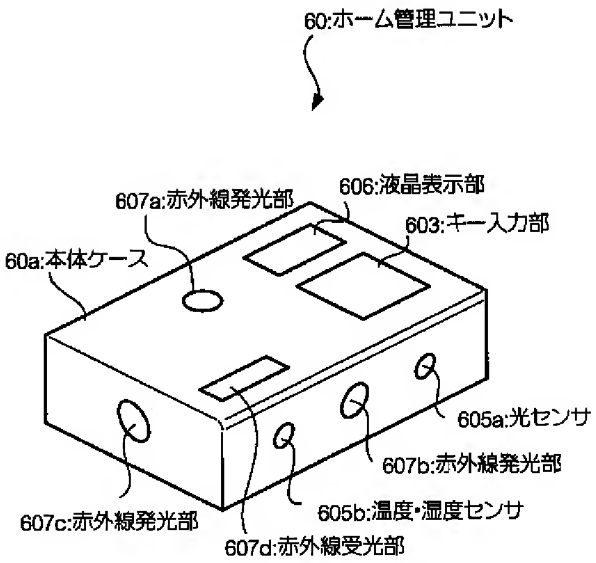



[Drawing 4]

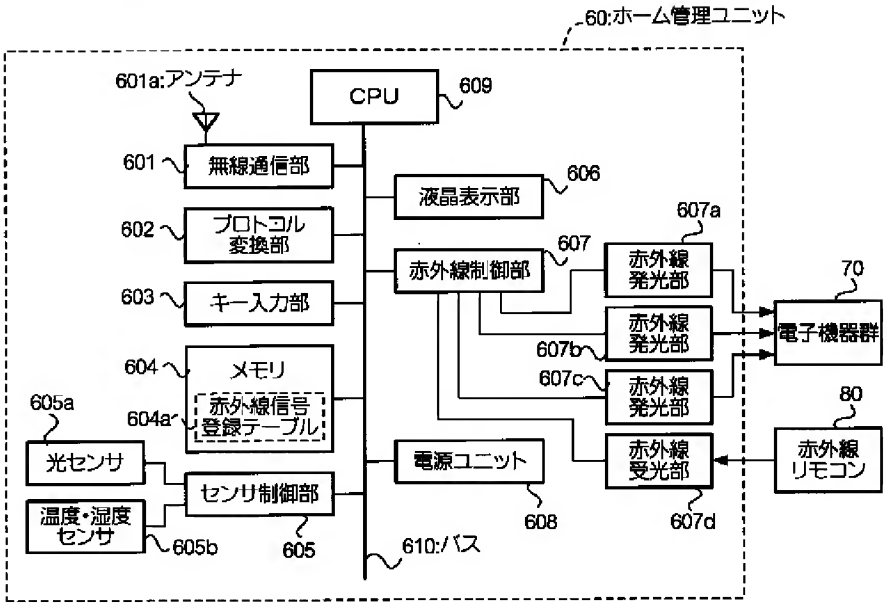
501b:制御コード登録DB

| サービスID | コードNo. | 制御内容 | | 登録フラグ |
|---|---|---|---|---|
| | | 電子機器 | 操作内容 | |
| SA00001 | 1 | 照明機器 | 照明オフ | 1 |
| | 2 | 照明機器 | 照明オン | 1 |
| | 3 | エアコン | 主電源オフ | 1 |
| | 4 | エアコン | 主電源オン | 1 |
| | 5 | エアコン | 設定温度＋ | 1 |
| | 6 | エアコン | 設定温度－ | 1 |
| | 7 | エアコン | 除湿機能オフ | 0 |
| | 8 | エアコン | 除湿機能オン | 0 |
| | 9 | ビデオデッキ | 主電源オフ | 1 |
| | 10 | ビデオデッキ | 主電源オン | 1 |
| | 11 | ビデオデッキ | 録画 | 1 |
| | 12 | ビデオデッキ | 停止 | 1 |
| | 13 | ビデオデッキ | CH設定「1」 | 1 |
| | 14 | ビデオデッキ | CH設定「3」 | 1 |
| | ⋮ | ⋮ | ⋮ | ⋮ |
| ⋮ | ⋮ | ⋮ | ⋮ | ⋮ |

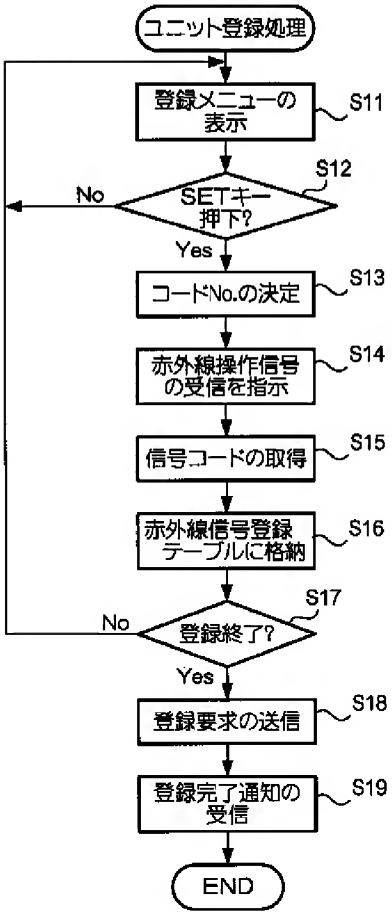
[Drawing 7]




[Drawing 8]




[Drawing 10]

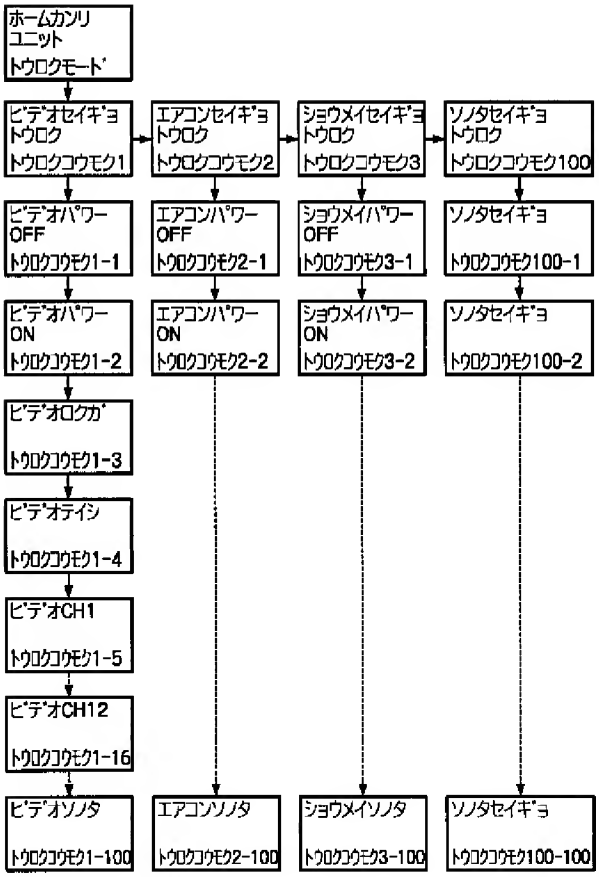



[Drawing 9]

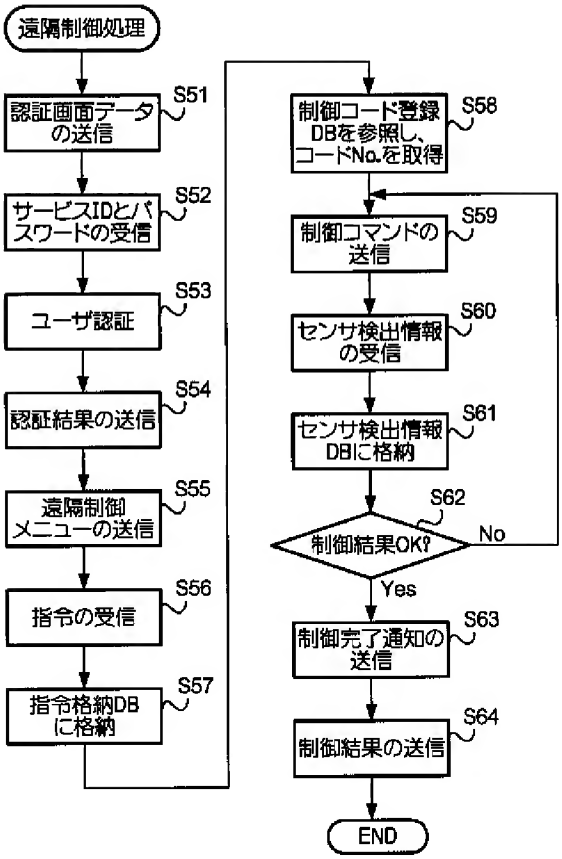
604a:赤外線信号登録テーブル

| コードNo. | 制御内容 | | 信号コード |
|---|---|---|---|
| | 電子機器 | 操作内容 | |
| 1 | 照明機器 | 照明オフ | |
| 2 | 照明機器 | 照明オン | |
| 3 | エアコン | 主電源オフ | |
| 4 | エアコン | 主電源オン | |
| 5 | エアコン | 設定温度＋ | |
| 6 | エアコン | 設定温度－ | |
| 7 | エアコン | 除湿機能オフ | |
| 8 | エアコン | 除湿機能オン | |
| 9 | ビデオデッキ | 主電源オフ | |
| 10 | ビデオデッキ | 主電源オン | |
| 11 | ビデオデッキ | 録画 | |
| 12 | ビデオデッキ | 停止 | |
| 13 | ビデオデッキ | CH設定「1」 | |
| 14 | ビデオデッキ | CH設定「3」 | |
| ⋮ | ⋮ | ⋮ | ⋮ |

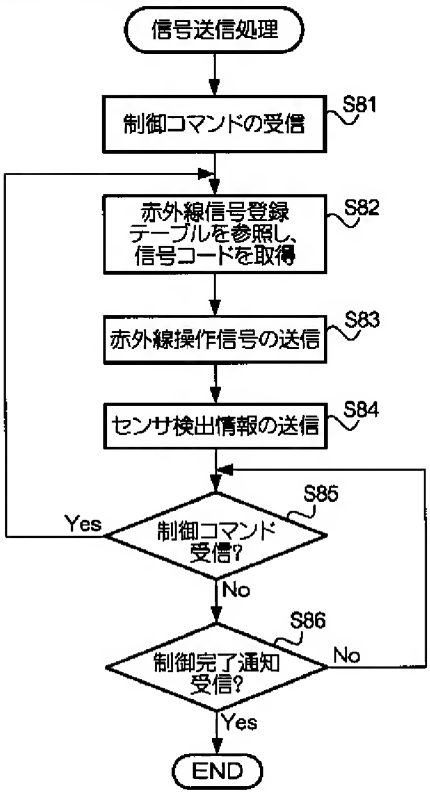
[Drawing 11]


ホームカンリ
ユニット
トウロクモード
ビデオセイキョ
トウロク
トウロクコウモク1
エアコンセイキョ
トウロク
トウロクコウモク2
ショウメイセイキョ
トウロク
トウロクコウモク3
ソノタセイキョ
トウロク
トウロクコウモク100
ビデオパワー
OFF
トウロクコウモク1-1
エアコンパワー
OFF
トウロクコウモク2-1
ショウメイパワー
OFF
トウロクコウモク3-1
ソノタセイキョ
トウロクコウモク100-1
ビデオパワー
ON
トウロクコウモク1-2
エアコンパワー
ON
トウロクコウモク2-2
ショウメイパワー
ON
トウロクコウモク3-2
ソノタセイキョ
トウロクコウモク100-2
ビデオロクガ
トウロクコウモク1-3
ビデオテイシ
トウロクコウモク1-4
ビデオCH1
トウロクコウモク1-5
ビデオCH12
トウロクコウモク1-16
ビデオソノタ
トウロクコウモク1-100
エアコンソノタ
トウロクコウモク2-100
ショウメイソノタ
トウロクコウモク3-100
ソノタセイキョ
トウロクコウモク100-100

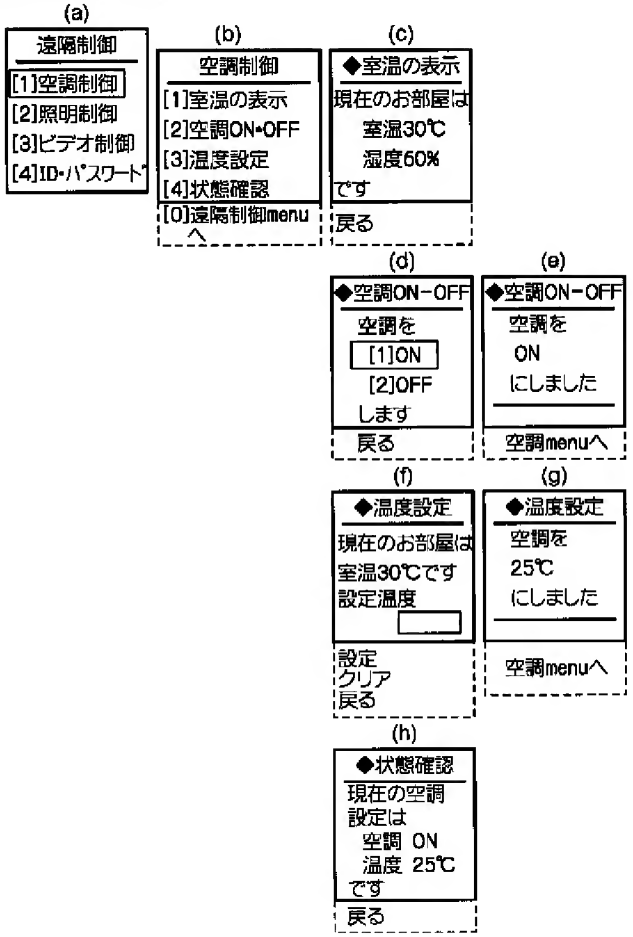
[Drawing 13]


遠隔制御処理
認証画面データの送信
S51
サービスIDとパスワードの受信
S52
ユーザ認証
S53
認証結果の送信
S54
遠隔制御メニューの送信
S55
指令の受信
S56
指令格納DBに格納
S57
制御コード登録DBを参照し、コードNo.を取得
S58
制御コマンドの送信
S59
センサ検出情報の受信
S60
センサ検出情報DBに格納
S61
制御結果OK?
S62
No
Yes
制御完了通知の送信
S63
制御結果の送信
S64
END

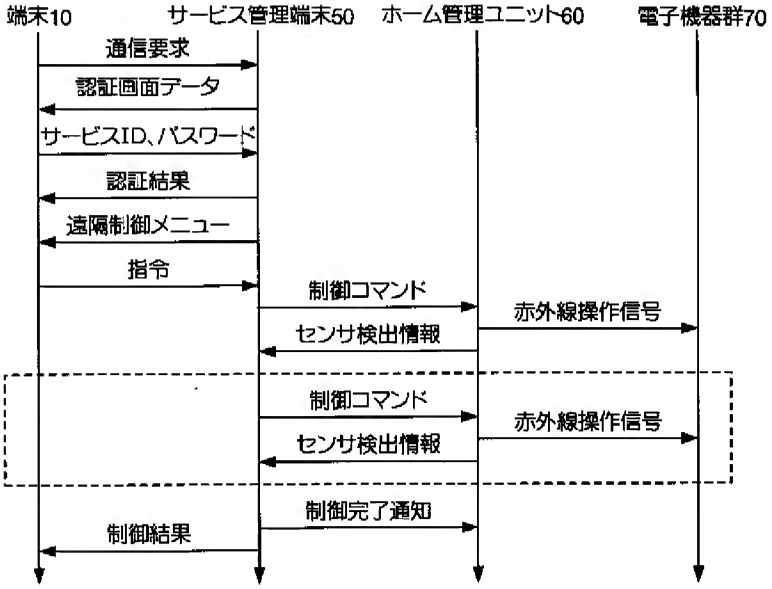
[Drawing 16]


信号送信処理
制御コマンドの受信
S81
赤外線信号登録テーブルを参照し、信号コードを取得
S82
赤外線操作信号の送信
S83
センサ検出情報の送信
S84
制御コマンド受信?
S85
Yes
No
制御完了通知受信?
S86
No
Yes
END

[Drawing 15]




[Drawing 17]



[Translation done.]